

CRITICAL POINT - A peak or high ground with abrupt local relief requiring investigation in planning aerial photography to avoid "*hidden ground*."

CRITICAL SURFACE - A valley terrain of cylindrical form with the air base lying on or near the surface of the cylinder as extended into the air. Orientation becomes indeterminate.

CROSS SECTIONING, DIGITAL - The determination of a vertical section of terrain in which the measurements are stored as numerical values. See DIGITIZING.

CUESTA - A ridge, or belt of hilly land, formed on gently dipping rock strata (e.g. on a coastal plain) from the more durable layers, which resist denudation better than the weaker layers, and are thus left behind as uplands; it has a gentle dip slope on one side, and a relatively steep scarp slope on the other.

CULTURE - Those features of the terrain that have been constructed by man, such as roads, trails, buildings and boundary lines.

CULVERT - A structure carrying traffic over a watercourse having a 10 feet or less clear span. Usually a pipe section.

CURVES - Curved rulers, termed irregular curves, or French curves, used for drawing curved lines. The patterns for these curves are laid out in parts of ellipses and spirals or other mathematical curves in various combinations. Curves for drawing circular curves are highway curves.

CUT - 1) Depth to which material is to be excavated (*cut*) to bring the surface to a predetermined grade. Therefore, the cut is the difference in elevation of a surface point and a point on the proposed subgrade vertically below it. 2) The name applied to the excavated area itself. 3) A graphic ray from a known plane table position to an unknown position. See CUT*.

CUT TAPE - A survey tape on which the minor graduation are placed only between zero and one unit. See ADD TAPE.

D

DEP. - Departure (of a traverse)

DI-10 - A brand name of electronic distance measurement equipment.

DATUM - A position or element in relation to which others are determined; a reference system. In surveying, two principal types of datums are used - horizontal and vertical. See SEA LEVEL DATUM, NORTH AMERICAN DATUM OF 1927, 1927 NAD, HORIZONTAL GEODETIC DATUM and VERTICAL GEODETIC DATUM.

DATUM PLANE - A surface used as a reference from which to reckon heights or depths. The datum in most general use is based upon mean sea level and this is used as the reference for the first-order level net extending over the whole country.

DATUM SHIFT - A graphical correction required where source map data is on a different datum than the map under revision.

DEFLECTION ANGLE (USGS) - The angle, measured in the vertical plane containing the flight direction, between the datum of a model in a stereotriangulated strip and the datum of the preceding model. See DEFLECTION ANGLE*.

DELINEATION - The visual selection and distinguishing of mapworthy features on the surface of various possible source materials by outlining the features on the source material, or on a map manuscript (as when operating a stereoscopic plotting instrument); also, a preliminary step in compilation. See COMPILATION and PHOTO DELINEATION.

DELTA - The fan-shaped alluvial tract formed at the mouth of a river, when it deposits more solid material there than can be removed by tidal or other currents.

DENSITOMETER - Device used to measure the average grey-tone density of images on a piece of film. The measurement may be a meter reading or an electronic signal. When the observed area is smaller than a few hundred microns, the instrument is called a microdensitometer.

DENSITY - 1) The comparative amount of silver (or dye) in a given area of a photograph resulting from exposure to light and development. 2) Descriptive of the number of survey control points in an area.

DEPARTURE - The east-west component of a traverse course.

DEPRESSION ANGLE - The vertical angle measured at the perspective center between the true horizon and the photograph perpendicular. The complement of an angle of tilt.

DEPRESSION CONTOUR - A contour forming a closed loop around lower ground.

DEPTH CURVE - A line connecting points of equal depth, referenced to a water surface. Intervals between depth curves may be variable.

DEPTH OF FIELD - The range of object distance (lens to object) within which images formed by a lens, on a given surface, have acceptable sharpness.

DEPTH OF FOCUS - The range of image distances (lens to object) within which the images formed by a lens, on a given surface, have acceptable sharpness. In photogrammetry it defines the range through which the projection distance of a photogrammetric projector can be varied while preserving satisfactory image detail in the stereoscopic model.

DESCRIPTION - The formal published data describing each triangulation, trilateration, traverse station, bench mark or other mark preserving horizontal position and/or elevation. The description contains information regarding location, type of mark and augmenting data which will help find the mark and identify it.

DESERT - An almost barren tract of land in which the precipitation is so scanty or so sporadic that it will not adequately support vegetation.

DETAILS - The small items or particulars of information shown on a map by lines, symbols, and letting. The greater the omission of details the more generalized the map.

DIAPHRAGM - The device for controlling the size of the opening of a lens. The size of the lens opening governs the amount of light reaching the film.

DIAPOSITIVE - A positive photographic print on a transparent medium, generally glass, for use in a plotting instrument.

DIAPOSITIVE CENTERING DEVICE - (USGS) A special device used to position the principal point of a diapositive with respect to the plateholder.

DIAPOSITIVE - A device for making positive copies of negatives in proper format for photogrammetry.

DICHROMATE PROCESS - A photographic rub-on color process used to transfer from one drawing to another.

DIFFERENTIAL LEVELING - The process of measuring distances in elevation by spirit leveling.

DIFFERENTIAL SHRINKAGE - The difference in unit contraction along the grain structure of material as compared to the unit contraction across the grain structure; frequently applied to photographic film and papers and to mapping papers in general.

DIGITAL IMAGE (OR DIGITIZED IMAGE) - An image composed of small, uniformly shaped regions each of which have assigned coordinates and a grey tone. See RESOLUTION CELL.

DIGITAL MAPPING - The process of generating a map using computer-processed data in numerical form.

DIGITIZING - The conversion of a space relationship or measurement to numerical values in which mapping or cross-section data is converted to punch card form by a transducer and digitizer coupled to a recording system.

DIP ANGLE - The vertical angle of the observation point between the plane of the true horizon and a sight line to the apparent horizon. In photogrammetry, this angle is measured in the principal plane of the photograph at the exposure station.

DIRECT ANGLE - An angle measured directly between two lines, as distinguished in transit traverse from a deflection angle.

DIRECT COPY - See AUTOPOSITIVE.

DIRECT MEASUREMENT - Determination of a distance by physical comparison or accumulation of distance using a device calibrated in some unit of measure. See INDIRECT MEASUREMENT.

DIRECTION - The angle between a line and an arbitrarily chosen reference line. When the reference line is north or south and the angle is measured east or west, the direction is called a bearing. When the reference line is south and the angle is clockwise, the direction is called an azimuth.

DIRECTION THEODOLITE - An instrument which has a horizontal circle which remains in one position during one set of observations.

DIRECT POSITIVE - A film. See AUTOPOSITIVE.

DIRECT RADIAL PLOT - See RADIAL TRIANGULATION.

DIRECT RADIAL TRIANGULATION - See RADIAL TRIANGULATION.

DIRECT TIE - See DIRECT TIE*.

DISCREPANCY - The difference between two results of measurement or computation.

DISPLACEMENT - 1) Any shift in image position which does not affect the perspective characteristics of the photograph. 2) Horizontal shift of plotted position of a topographic feature caused by adherence to prescribed line weights and symbol sizes. See TILT DISPLACEMENT and RELIEF DISPLACEMENT.

DISSECTED PLATEAU - A Plateau into which a number of valleys have been carved by erosion; its origin as a plateau is patent, however, when the tops of the mountains and ridges are seen to be level against the skyline, it shows that they once formed part of a continuous surface.

DISTANCE ANGLE - The angle in a triangle under a law-of-sines computation which is opposite the known distance.

DISTORTION - Any shift in the position of an image on a photograph which alters the perspective characteristics of the photograph. Causes of image distortion include lens aberration, differential shrinkage of film or paper, and motion of the film or camera. See **FILM DISTORTION** and **LENS DISTORTION**.

DISTORTION CURVE - A curve representing the distortion characteristics of a lens; it is plotted with image radial distances from the lens axis as abscissas and image radial displacements as ordinates. Image displacements away from the lens axis are considered as positive.

DIURNAL - Having a period of, or occurring in, or related to, a day.

DIVIDE - A ridge or area of elevated land between two basins or valleys.

DIVIDED HIGHWAY - A highway with separated roadways for traffic in opposite directions.

DODGING - The process of holding back light from certain areas of sensitized material to avoid overexposure of these areas.

DOMESTIC MAP - A mapped area of the U.S.A.

DOPPLER EFFECT (Also DOPPLER SHIFT) - Apparent change in frequency of radiant energy (sound waves, or electrical waves) when the distance between the source and the observer or receiver is constantly changing.

DOT GRAVER - A device for drilling a small circular hole for scribing maps.

DOT GRID - Film positive with regularly spaced dots used as an overlay over a photo or map in determining areas.

DOUBLE CENTERING - A method of prolonging a line from a fixed point whereby the backsight is taken with the telescope in the direct position. The telescope is placed in the indirect position and the foresight is made. The point at which the vertical cross-hair intersects the hub is then marked. The transit is then rotated 180° to take a backsight with the telescope in the indirect position, and a second projected point with the telescope in the direct position is marked on the hub. A point midway between the two marked points is the true point on the prolonged line.

DOUBLE-RODDED LINE - A line of leveling wherein two sets of turning points are used to give independent sets of measurements from the same instrument setups.

DRAFTING GUIDE - See **COLOR-SEPARATION GUIDE**.

DRAINAGE - All map features associated with water runoff.

DRAINAGE AREA - The area of a drainage basin.

DRIFT - 1) The horizontal displacement of an aircraft, caused by the force of wind, from the track it would have followed in still air. 2) A special condition of crab wherein the photographer has continued to make exposures oriented to the predetermined line of flight while the airplane has drifted from that line.

DUMPY LEVEL - A leveling instrument with its telescope permanently attached to the vertical spindle or leveling base as a single unit.

DUNE - A hill or ridge of sand formed by transportation by the wind.

DUPLICATING FILM - Sensitized emulsion on transparent base manufactured for the special purpose of duplicating photographs, particularly color photographs.

E

EC STATION - 1) Extended control station. 2) Electronic control station.

ER-55 - See later in this section.

ESNA - Electrical Survey Net Adjuster.

ECCENTRICITY - 1) The amount of deviation from a center. 2) Lack of coincidence of the several centers of rotation, circles, and indexes of an instrument. 3) Horizontal displacement of the instrument or signal from the station mark at the time an observation is made. 4) A measure of the relative shape of an ellipse or an ellipsoid.

ECCENTRICITY CORRECTION - The correction that must be applied to an observation made from an eccentric setup (reduction to center) or to an eccentric signal to compensate for eccentricity. See **REDUCTION TO CENTER** and **SWING**.

ECCENTRIC SIGNAL - A signal (target) which is not in the same vertical line with the station which it represents.

EDGE ENHANCEMENT - Image alternation which intensifies the changes between adjacent areas.

EDITING - Checking a map in its stages of preparation to insure correct interpretation of the sources used and precise reproduction.